

City of Wadsworth

Connected Grid Project

Abstract

The City of Wadsworth's (Wadsworth) Connected Grid project involves system-wide deployment of advanced metering infrastructure (AMI) and targeted installation of in-home displays, home area networks, programmable communicating thermostats, load control devices, and distribution automation equipment. The smart meters provide two-way communication, allowing customers to view their energy use and Wadsworth to better monitor customer demand. Load control devices and programmable communicating thermostats help Wadsworth manage its peak load. Wadsworth is also upgrading and expanding its distribution automation equipment, including installation of automated reclosers (feeder switches) and capacitor bank controls. This is expected to improve reliability, reduce operations and maintenance costs, and decrease distribution energy losses.

Smart Grid Features

Communications infrastructure allows two-way communication between Wadsworth's data management center and customer meters, as well as distribution monitoring systems. Wadsworth is also implementing a 24-mile fiber optic network to support the increased data traffic from the metering and distribution automation systems.

Advanced metering infrastructure includes a system-wide deployment of approximately 12,600 residential and commercial/industrial smart meters. The residential smart meters are home area network-compatible for future integration with other in-home devices such as smart appliances. The smart meters help to reduce meter reading costs by reducing truck rolls and fuel consumption.

Advanced electricity service options include in-home displays and programmable communicating thermostats. Web portals are available to all customers and enable them to view their electricity use and utilize the in-home energy technologies if they choose.

Direct load control devices include load control relays connected to the home area network and the smart meters. These devices enable

At-A-Glance

Recipient: City of Wadsworth

State: Ohio

NERC Region: ReliabilityFirst Corporation

Total Budget: \$10,823,539

Federal Share: \$5,411,769

Project Type: Integrated and/or Crosscutting Systems

Equipment

- 12,600 Smart Meters
- AMI Communication Systems
 - Meter Communications Network
 - Backhaul Communications
- Meter Data Management System
- 300 In-Home Displays
- 1500 Programmable Communicating Thermostats
- Customer Systems for 12,750 customers (~9% of the customer base is participating in the Peak Rewards program). The customer systems include:
 - Home Area Networks
 - Customer Web Portal
 - Direct Load Control Devices
- Distribution Automation Equipment for 18 out of 18 Circuits (17 circuits were upgraded)
 - Distribution Management System
 - Distribution Automation Communications Network
 - Automated Distribution Circuit Switches
 - Automated Capacitors
 - Automated Regulators

Time-based Rate Programs

- Time of Use

Key Targeted Benefits

- Improved Electric Service Reliability and Power Quality
- Reduced Meter Reading Costs
- Reduced Operating and Maintenance Costs
- Reduced Costs from Equipment Failures, Distribution Line Losses, and Theft
- Reduced Truck Fleet Fuel Usage
- Reduced Greenhouse Gas and Criteria Pollutant Emissions

City of Wadsworth *(continued)*

Wadsworth to control certain appliances in exchange for rebates or electricity price reductions. HAN-eligible control equipment includes air conditioners, water tanks, or pool pumps. Wadsworth plans to use these devices to limit its peak load and defer investment in distribution capacity.

Time-based rate programs are currently implemented.

Distribution automation systems include automated feeder switches, automated capacitor bank controls, and a distribution management system. These assets improve distribution system reliability and operational efficiency.

Distribution system energy efficiency improvements involve the integration of capacitor automation and a power quality monitoring system. The capacitors improve voltage control, power quality, and distribution capacity by reducing energy losses on the distribution system.

Timeline

Key Milestones	Target Dates
AMI assets deployment begins	Q3 2010
Distribution automation asset deployment begins	Q4 2011
AMI asset deployment ends	Q3 2013
Distribution automation asset deployment ends	Q4 2013

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